val, the heavy metals were formed in another round of stellar explosions. All this occurred over a period of 5–7 billion years.
See also fusion, astrochemistry; life, origin.

nucleon. General name applied to neutrons and protons, the essential constituents of atomic nuclei and also used as a class name for fundamental particles of that mass. The study of subatomic particles is often called nucleonics.

nucleophile. An ion or molecule that donates a pair of electrons to an atomic nucleus to form a covalent bond, the nucleus that accepts the electrons is called an electrophile. This occurs, e.g., in the formation of acids and bases according to the Lewis concept, as well as in covalent carbon bonding in organic compounds.
See also Lewis base, donor.

nucleoprotein. A type of protein universally present in the nuclei and the surrounding cytoplasm of living cells. A nucleoprotein is composed of a protein, which is rich in basic amino acids, and a nucleic acid. The nucleic acid portions can be isolated and used in medical and biochemical research
See also deoxyribonucleic acid, chromatin, virus.

nucleoside. A compound of importance in physiological and medical research, obtained during partial decomposition (hydrolysis) of nucleic acids, and containing a purine or pyrimidine base linked to either d-ribose, forming ribosides, or d-deoxyribose, forming deoxyribosides. They are nucleotides minus the phosphorus group. For specific nucleosides see adenosine, cytidine, guanosine, and uridine.

nucleotide. A fundamental unit of nucleic acids, some are important coenzymes. The four nucleotides found in nucleic acids are phosphate mono-esters of nucleosides, adenylic acid, guanylic acid, uridylic acid, and cytidylic acid. Great progress has been made in determining the nucleotide sequence in fundamental materials, such as yeast genes.

The term is also applied to compounds not found in nucleic acids and that contain substances other than the usual purines and pyrimidines. Such compounds are modified vitamins, and function as coenzymes; examples are riboflavin phosphate (flavin mononucleotide), flavin adenine nucleotide, nicotinamide adenine dinucleotides, nicotine adenine dinucleotide phosphate, and coenzyme A. The nucleotides inosine-5′-monophosphate and guanosine-5′-monophosphate are used as flavor potentiators.

nucleus. (1) The positively charged central mass of an atom, it contains essentially the total mass in the form of protons and neutrons. The nucleus of the hydrogen atom consists of one proton, while that of uranium is comprised of 93 protons and 146 neutrons.

(2) The central portion of a living cell, consisting primarily of nucleoplasm in which chromatin is dispersed. It is enclosed by a membrane that separates it from the surrounding cytoplasm. All the most important functions of the cell, including the mechanics of division (mitosis) and the programming of the genetic code, take place in the nucleus.
See also gene, chromosome.

(3) The characteristic structure of a group of chemical compounds, e.g., the benzene nucleus.

(4) Any small particle which can serve as the basis for crystal growth (see nucleation).

Note: The multiple meanings of "nucleus" and "resonance" can be a source of confusion, especially when these terms are closely associated, as in nuclear magnetic resonance and resonance of a molecular nucleus. In the first of these expressions, nucleus is used in sense (1) under nucleus and resonance in sense (2) under resonance. In the second expression, nucleus is used in sense (3) under nucleus and resonance in sense (1) under resonance.

nuclide. A particular species of atom, characterized by the mass, the charge (number of protons), and the energy content of its nucleus. A radionuclide is a radioactive nuclide. Example: carbon-14 is a radionuclide of carbon.
See also isotope.

"Nuclon" [*PPG*]. TM for a polycarbonate thermoplastic resin.
Properties: High impact resistance not appreciably reduced by temperature fluctuations, good dimensional stability, good electrical resistance. Naturally transparent of light straw color.
Use: Engineering plastic for "hard service" parts and components.

nuisance particulate. Fine particles (dusts) that are not very toxic in low concentrations. Among them are clay, calcium carbonate, emery, glass fiber, silicon carbide, gypsum, starch, Portland cement, marble, and titanium dioxide.
See also dust, industrial.

Nujol. Mineral oil used to prepare mulls for infrared analysis.

numerals. For their use and meaning in chemical names
See Geneva System; benzene; chemical nomenclature.

"Nuroz" [*Reichhold*]. TM for a polymerized wood rosin.

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